

REMARKS/ARGUMENTS

In the Office Action, claims 1-27 were rejected under 35 USC 103(a) as being unpatentable over US Pat. No. 4,446,679 (Thomas), and in view of US Pat. No. 6,359,344 (Klein). Furthermore, an objection was raised concerning the Abstract because it included the phrase "The present invention".

Remarks Regarding Amendments: Abstract

The Abstract has been amended to remove the phrase "The present Invention provides" in the first sentence. As well, the phrase "in which the apparatus", appearing later in the same sentence, has been removed for consistency. Applicant submits that the Abstract, as amended, complies with the guidelines set out in MPEP 608.01(b).

Remarks Regarding Claim Amendments

Applicant has amended independent claims 1, 12, and 17 to more clearly describe the "independently movable" nature of the drive pins of the claimed apparatus, as being independent relative to adjacent drive pins. In particular, the amended claims now recite a blade coupler having a plurality of upstanding drive pins, "each drive pin being independently movable relative to adjacent drive pins between a raised position and a lowered position".

Furthermore, the last line of claim 1 has been amended to recite "a rotating blade of a lawn mower", rather than the blade of a rotating lawn mower. It is the blade that rotates, rather than the lawn mower.

Claim 2 has been amended to more specifically define the blade coupler as having a plurality of biasing means, each associated with a respective drive pin.

Claims 3 and 18 have been amended to more specifically define that the drive pins extend slidably through the apertures in the upper disc of the blade coupler.

Claim 4 has been amended to have language consistent with amended claim 2.

Applicant submits that these amendments introduce no new subject matter. Support for the claimed independent movement of each drive pin relative to adjacent drive pins can be found in the description at paragraph 80, and with reference to Figures 15 and 16. Paragraph 80 describes lowered drive pins 320b, with drive pins 320a, adjacent the lowered drive pins, remaining in the raised position.

Support for the claimed plurality of biasing means, each associated with a respective drive pin can be found in the description at paragraph 77, with reference to Figures 15 and 16, describing springs 344 between each of the drive pins 320 and the plate 324.

Support for the claim amendment defining that the drive pins extend slidably through the apertures can be found in paragraph 76, stating that each drive pin is "slidably retained."

Arguments re Obviousness

The Examiner stated that Thomas discloses a connection between a lawn mower and an apparatus powered by the lawn mower being achieved with

couplers and drive pins, but not with the blade of the lawn mower still attached. The Examiner stated that Klein teaches that it is well known to provide such a coupler.

Applicant respectfully submits that the present invention, as claimed in independent claims 1, 12, and 17 (as amended), cannot be considered obvious in view of Thomas combined with Klein. The independent claims of the present invention are directed to a lawn mower powered apparatus provided with a blade coupler having a plurality of upstanding drive pins. Each drive pin is independently movable relative to adjacent drive pins between a raised position and a lowered position. Drive pins in the raised position project above a top surface of the base of the apparatus for engaging a leading edge of a rotating blade of the lawn mower.

Thomas discloses an apparatus to be powered by a lawn mower, wherein the blade of the lawn mower must be removed for transferring rotary motion from the lawn mower to an input shaft of the apparatus. No structure similar to the blade coupler as claimed in the present invention is disclosed in Thomas.

Klein discloses an apparatus 10 to be powered by a lawn mower, and includes a coupling C for transferring rotary power from the lawn mower (with blade 140 still attached) to the apparatus 10.

In a first embodiment, the coupling C of Klein has a lower section 200 and an upper section 300, with a slot 310 in the upper section to receive the blade 140. A spring 260 is provided between the lower and upper sections 200, 300, to bias the upper section 300 (in its entirety) to a raised position. Any misalignment between the blade 140 and slot 310 results in the blade pushing upper section 300 towards lower section 200 against the action of spring 260.

In a second embodiment (Fig. 21), a modified upper section 350 has two generally perpendicular slots 352, each of which can receive the blade 140. This provides four upstanding pillars or abutment elements 360, 362, 364, and 366. All four elements move together upward and downward, all four being urged upwardly by the force of spring 260, acting on the upper section 350. There is no teaching of independently movable drive pins, relative to adjacent pins, as claimed in the present invention.

In a third embodiment (Fig. 13), modified upper section 400 has four pegs 430 and is mounted above a fixed lower section 402 having no spring action. The four pegs 430 are not movable at all between raised and lowered positions.

Accordingly, Klein does not disclose independently movable drive pins, relative to adjacent pins, as claimed in the present invention. Neither does Thomas. Since the cited references do not disclose the limitations of the claimed invention, Applicant respectfully submits that the invention as claimed in claims 1, 12 and 17 cannot be considered obvious in view of the references.

Furthermore, Applicant respectfully submits it cannot be considered obvious to further modify Thomas and Klein to arrive at the present invention. One reason is because Klein teaches away from using springs with drive pins.

With respect to the embodiment of Fig. 12, Klein teaches that "when using section 350, it is possible to make the lower section 200 fixed, without spring 260" (see col 6, lines 19-21). Furthermore, with respect to the embodiment of Fig. 13, which has four pegs 430, Klein specifically teaches that "it is not necessary to provide a spring action for the universal coupling" (see col 6, lines 34-35), and no spring is provided. Accordingly, Klein teaches away from providing biasing means in association with multiple upstanding drive pins for coupling to a blade.

Applicant additionally submits that Klein cannot properly render the present invention obvious because Klein does not teach the same source of the problem as identified in the present invention. The present invention recognizes that where upstanding drive pins for coupling to a blade can only move collectively between lowered (non-engaging) and raised (engaged) positions, positive engagement of the coupler with the blade, when lowering the blade onto the coupler, cannot be ensured. The independent movement of the pins as claimed in the present invention provides positive engagement because, regardless of blade orientation, some drive pins will remain in the raised position to engage the leading edge of the blade.

In each of the embodiments of Klein, positive engagement of the blade and the coupler cannot be ensured at start-up of the lawn mower. Klein acknowledges this explicitly for the first two embodiments, providing wear plates adjacent the slot or slots and over which the blade can ride prior to orienting with, and seating in, the slot.

For the third embodiment, cone-shaped tops 432 are provided on the pegs 430, presumably to facilitate engagement of the blade in a slot prior to start-up of the lawn mower. However, a blade positioned directly above the pegs 430 would still bear downward against the pegs, rather than rotationally orient itself with one of the slots. This would be the case particularly if there were any resistance to free rotation of the blade or coupling, which can be caused by, for example, the engine connected upstream of the blade, or the generator apparatus positioned downstream of the coupling of Klein.

In view of the above, Applicant respectfully submits that claims 1, 12 and 17 ought not to be rejected as obvious in view of the prior art. Furthermore, Applicant respectfully submits that the remaining claims 2-11, 13-16, and 18-27 depend either directly or indirectly from an independent base claim 1, 12, or 17,

that, as argued above, is allowable. Accordingly, Applicant submits that the revised claims are allowable for that reason.

Moreover, Applicant submits that claim 2 (as amended) is allowable for the following additional reason. Claim 2 (as amended) includes a plurality of biasing means, each biasing means associated with a respective one of the plurality of drive pins to urge the drive pins to the raised position. Klein teaches only a single spring 260 acting on upstanding blade engagement elements collectively.

Thomas has no blade engaging elements at all, since the blade of the mower is removed when connecting the apparatus to the mower. The prior art does not disclose the limitations of claim 2, and Applicant submits that claim 2 cannot be considered obvious in view of the art for this additional reason.

With respect to claim 3, the prior art cited does not disclose a disc with apertures through which the drive pins slidably extend, as claimed in amended claim 3. Applicant submits that claim 3 is unobvious in view of the prior art for this additional reason.

With respect to claim 4, Applicant submits that the cited art fails to disclose an apparatus having a compression spring provided between a respective drive pin and a lower disc, as claimed in amended claim 4. Applicant respectfully submits that claim 4 (as amended) is unobvious in view of the prior art for this additional reason.


With respect to claims 19 (as amended) and 20, Applicant submits that the remarks made above regarding claims 3 and 4 also apply to claims 19 and 20. Applicant respectfully submits that claims 19 (as amended) and 20 claim structures not taught in the prior art, and that these claims cannot be considered obvious in view of the prior art.

In view of all the above, Applicant submits that this is a complete response to the Examiner's Communication. Applicant further submits that the present application, as amended, is now in condition for allowance. Issuance of a notice to that effect is respectfully solicited.

If additional fees are required, please charge the fees to our Deposit Account No. 02-2095.

Respectfully submitted,

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